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M	C5	Carter et al., "7 BALB/c mouse (1989)							
M	C6	Hart et al., "Po							

Thornhill et al., "IL-4 Regulates Endothelial Cell Activation by IL-1, Tumor Necrosis Factor, or IFN-γ¹", J. Immunol., 145: 865-872 (1990)

EXAMINER

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DATE CONSIDERED

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Proc. Natl. Acad. Sci, USA., 86: 3803-3807 (1989)

INFORMATION CITED BY APPEICANTS THAT MAY BE MATERIAL TO THE PROSECUTION OF THE SUBJECT APPLICATION

Applicants:

B. Masinovsky et al.

Attorney Docket No: FHIC16963

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Title:

IL-4 ACTS SYNERGISTICALLY WITH IL-1β TO PROMOTE

LYMPHOCYTE ADHESION TO MICROVASCULAR ENDOTHELIUM BY

INDUCTION OF VCAM-1

U.S. PATENT DOCUMENTS

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FOREIGN PATENT DOCUMENTS

*Examiner		Document	Publication			Sub-	Trans	<u>lation</u>
Initial	ID	No.	Date	Country	Class	Class	Yes	No

NONE.

OTHER INFORMATION (Including Author, Title, Date, Pertinent Pages, Etc.)

*Examiner		
Initial	ID	Document Information
Cpc_	R	Masinovsky et al., FASEB Journal 3(3):A482, March 1989.
cu	O 1	Gallatin, W.M. et al., A cell-surface molecule involved in organ- specific homing of lymphocytes, <i>Nature</i> 304:30-34, 1983.
Cu	O2	Holzmann, B. et al., Identification of a murine Peyer's patch-specific lymphocyte homing receptor as an integrin molecule with an α chain homologous to human VLA 4α , Cell 56:37-46, 1989.
	O 3	Duijvestijn, A., and A. Hamann, Mechanisms and regulation of lymphocyte migration, <i>Immunol. Today</i> 10:23-28, 1989.
_ cu	O4	Gallatin, W.M. et al., Lymphocyte homing receptors, <i>Cell</i> 44:673-680, 1986.

Ch	O 5	Yednock, T.A., and S.D. Rosen, Lymphocyte homing, Adv. Immunol. 44:313-378, 1989.
<u>Cu</u>	O6	Woodruff, J.J., and L.M. Clarke, Specific cell-adhesion mechanisms determining migration pathways of recirculating lymphocytes, <i>Ann. Rev. Immunol.</i> 5:201-222, 1987.
<u>Ch</u>	O8	Rothlein, R., et al., A human intercellular adhesion molecule (ICAM-1) distinct from LFA-1, <i>J. Immunol.</i> 137:1270-1274, 1986.
<u> </u>	O 9	Marlin, S.D., and T.A. Springer, Purified intercellular adhesion molecule-1 (ICAM-1) is a ligand for lymphocyte function-associated antigen-1 (LFA-1), <i>Cell</i> 51:813-819, 1987.
Ck_	O10 🖈	Cotran, R.S., New roles for the endothelium in inflammation and immunity, <i>Am. J. Pathol.</i> 129:407-413, 1987.
Ck	O11 ¹ .	Jalkanen, S., et al., A distinct endothelial cell recognition system that controls lymphocyte traffic into inflamed synovium, <i>Science</i> 233:556-558, 1986.
<u>Ck</u>	O12	Madri, J.A. et al., Matrix-driven cell size change modulates aortic endothelial cell proliferation and sheet migration, <i>Am. J. Pathol.</i> 132:18-27, 1988.
<u>ek</u>	O13	Pals, S.T. et al., Mechanisms of human lymphocyte migration and their role in the pathogenesis of disease, <i>Immunol. Rev.</i> 108:111-133, 1989.
_ Ch_	O14 ×	Pober, J.S., Cytokine-mediated activation of vascular endothelium. Physiology and pathology, <i>Am. J. Pathol.</i> 133:426-433, 1988.
<u>Ck</u>	O15	Duijvestijn, A.M. et al., Interferon-γ regulates an antigen specific for endothelial cells involved in lymphocyte traffic, <i>Proc. Natl. Acad. Sci. USA</i> 83:9114-9118, 1986/
<u> </u>	O16	Pohlman, T.H., and J.M. Harlan, Human endothelial cell response to lipopolysaccharide, interleukin-1, and tumor necrosis factor is regulated by protein synthesis, <i>Cell. Immunol.</i> 119:41-52, 1989.
_ Ch_	O17	Bevilacqua, M.P. et al., Interleukin 1 acts on cultured human vascular endothelium to increase the adhesion of polymorphonuclear leukocytes, monocytes, and related leukocyte cell lines, <i>J. Clin. Invest.</i> 76:2003-2011, 1985.

<u>eu</u>	O18	Cavender, D.E. et al., Interleukin 1 increases the binding of human B and T lymphocytes to endothelial cell monolayers, <i>J. Immunol</i> . 136:203-207, 1986.
<u>Cu</u>	019	Bevilacqua, M.P. et al., Identification of an inducible endothelial-leukocyte adhesion molecule, <i>Proc. Natl. Acad. Sci. USA</i> 84:9238-9242, 1987.
<u>Ca</u>	O20	Yu, C.L. et al., Human gamma interferon increases the binding of T lymphocytes to endothelial cells, <i>Clin. Exp. Immunol.</i> 62:554-560, 1985.
<u>Ck</u>	O21	Yu, C.L. et al., Effects of bacterial lipopolysaccharide on the binding of lymphocytes to endothelial cell monolayers, <i>J. Immunol</i> . 136:569-573, 1986.
<u>Cle</u>	O22	Cavender, D.E. et al., Stimulation of endothelial cell binding of lymphocytes by tumor necrosis factor, <i>J. Immunol</i> . 139:1855-1860. 1987.
Cle	O23	Issekutz, T.B., and J.M. Stoltz, Stimulation of lymphocyte migration by endotoxin, tumor necrosis factor, and interferon, <i>Cell. Immunol.</i> 120:165-173, 1989.
_ Cll_	O24	Issekutz, T.B., Effects of six different cytokines on lymphocyte adherence to microvascular endothelium and <i>in vivo</i> lymphocyte migration in the rat, <i>J. Immunol.</i> 144:2140-2146, 1990.
Ck	O25	Kalaaji, A.N. et al., The enhancement of lymphocyte localization in skin sites of sheep by tumor necrosis factor alpha, <i>Immunol. Letters</i> 23:143-148, 1989.
<u>Ck</u>	O26	Stoolman, L.M., Adhesion molecules controlling lymphocyte migration, <i>Cell</i> 56:907-910, 1989.
<u>Ck</u>	O27	Dustin, M.L., and T.S. Springer, Lymphocyte function-associated antigen-1 (LFA-1) interaction with intercellular adhesion molecule-1 (ICAM-1) is one of at least three mechanisms for lymphocyte adhesion to cultured endothelial cells, <i>J. Cell Biol.</i> 107:321-331, 1988.
Ck	O28	Rice, G.E., and M.P. Bevilacqua, An inducible endothelial cell surface glycoprotein mediates melanoma adhesion, <i>Science</i> 246:1303-1306, 1989.

Cle	O29	Osborn, L. et al., Direct expression cloning of vascular cell adhesion molecule 1, a cytokine-induced endothelial protein that binds to lymphocytes, <i>Cell</i> 59:1203-1211, 1989.
_ Cu_	O30 /	Elices, M.J. et al., VCAM-1 on activated endothelium interacts with the leukocyte integrin VLA-4 at a site distinct from the VLA-4/fibronectin binding site, <i>Cell</i> 60:577-584, 1990.
<u>Ck</u>	O31	Streeter, P.R. et al., Immunohistologic and functional characterization of vascular addressin involved in lymphocyte homing into peripheral lymph nodes, <i>J. Cell Biol.</i> 107:1853-1862, 1988.
_ lk_	O32	Streeter, P.R. et al., A tissue-specific endothelial cell molecule involved in lymphocyte homing, <i>Nature (Lond.)</i> 331:41-46, 1988.
Cle_	O33	Sarvetnick, N. et al., Insulin-dependent diabetes mellitus induced in transgenic mice by ectopic expression of class II MHC and interferon-gamma, <i>Cell</i> 52:773-782, 1988.
<u>Cle</u>	O34	Hendriks, H.R. et al., Rapid decrease in lymphocyte adherence to high endothelial venules in lymph nodes deprived of afferent lymphatic vessels, <i>Eur. J. Immunol.</i> 17:1691-1695, 1987.
Ck	O36	Kumar, S. et al., Heterogeneity in endothelial cells from large vessels and microvessels, <i>Differentiation</i> 36:57-70, 1987.
<u>Ck</u>	O37	Ager, A., Isolation and culture of high endothelial cells from rat lymph nodes, <i>J. Cell Sci.</i> 87:133-144, 1987.
<u>Ch</u>	O38	Ise, Y. et al., Molecular mechanisms underlying lymphocyte recirculation. I. Functional, phenotypical and morphological characterization of high endothelial cells cultured <i>in vivo</i> , Eur. J. Immunol. 18:1235-1244, 1988.
	O39	Gallatin, W.M. et al., Selective replication of simian immunodeficiency virus in a subset of CD4+ lymphocytes, <i>Proc. Natl. Acad. Sci. USA</i> 86:3301-3305, 1989.
<u>Cle</u>	O40	Kennett, R.H., Fusion Protocols. Fusion by Centrifugation of Cells Suspended in Polyethylene Glycol, in Monoclonal Antibodies. Hybridomas: a New Dimension in Biological Analysis, R.H. Kennett et al.; Plenum Press, New York, pp. 365-367, 1980.

<u>Ce</u>	O41	Monroe, J.G. et al., Lymphokine regulation of inflammatory processes:interleukin-4 stimulates fibroblast proliferation, <i>Clin. Immunol. Immunopathol.</i> 49:292-298, 1988.
U	O42	Park, L. et al., Characterization of the human B cell stimulatory factor 1 receptor, <i>J. Exp. Med.</i> 166:476-488, 1987.
_ Cle_	O43	Park, L.S. et al., Characterization of the high-affinity cell-surface receptor for murine B-cell-stimulating factor 1, <i>Proc. Natl. Acad. Sci. USA</i> 84:1669-1673, 1987.
UL_	O44	Lowenthal, J.W. et al., Expression of high affinity receptors for murine interleukin 4 (BSF-1) on hemopoietic and nonhemopoietic cells, <i>J. Immunol.</i> 140:456-464, 1988.
<u></u>	O45	Elias, J.A. et al., A synergistic interaction of IL-6 and IL-1 mediates the thymocyte-stimulating activity produced by recombinant IL-1-stimulated fibroblasts, <i>J. Immunol.</i> 142:509-514, 1989.
_ Cle	O46	Boxmeyer, H.E. et al., Synergistic effects of purified recombinant human and murine B cell growth factor 1/IL-4 on colony formation <i>in vitro</i> by hemopoietic progenitor cell, <i>J. Immunol.</i> 141:3852-3862, 1988.
	O47	Makgoba, M.W. et al., Functional evidence that intercellular adhesion molecule-1 (ICAM-1) is a ligand for LFA-1 dependent adhesion in T cell-mediated cytotoxicity, <i>Eur. J. Immunol.</i> 18:637-640, 1988.
<u>Cr</u> _	O48	Pober, J.S. et al., Ia expression by vascular endothelium is inducible by activated T cells and human γ-interferon, <i>J. Exp. Med.</i> 157:1339-1353, 1983.
<u> </u>	O49	Collins, T. et al., Recombinant human tumor necrosis factor increases mRNA levels and surface expression of HLA-A,B antigens in vascular endothelial cells and dermal fibroblasts <i>in vitro</i> , <i>Proc. Natl. Acad. Sci. USA</i> 83:446-450, 1986.
<u> </u>	O50	Lapiere, L.A. et al., Three distinct classes of regulatory cytokines control endothelial cell MHC antigen expression, <i>J. Exp. Med.</i> 167:794-804, 1988.
_U	O51	Gimbrone, M.A., Jr. et al., Endothelial interleukin-8: a novel inhibitor of leukocyte-endothelial interactions, <i>Science</i> 246:1601-1603, 1989.

_U	O52 7	Thornhill, M.H. et al., IL-4 increases human endothelial cell adhesiveness for T cells but not for neutrophilis, <i>J. Immunol.</i> 144:3060-3065, 1990.
_ Ch_	O53	Issekutz, T.B. et al., Role of interferon in lymphocyte recruitment into the skin, <i>Cell. Immunol.</i> 99:322-333, 1986.
_ fl	O54	Issekutz, T.B. et al., Lymphocyte recruitment in delayed-type hypersensitivity: the role of IFN-γ, <i>J. Immunol.</i> 140:2989-2993, 1988.
<u></u>	O55	Hughes, C.C.W. et al., Adhesion of lymphocytes to cerebral microvascular cells: effects of interferon-γ tumour necrosis factor and interleukin-1 <i>Immunology</i> 64:677-681, 1988.
<u> </u>	O56	Oppemheimer-Marks, N., and Ziff, Migration of lymphocytes through endothelial cell monolayers: augmentation by interferon-γ, <i>Cell. Immunol.</i> 114:307-323, 1988.
U	O57	Damle, N.K. and L.V. Doyle, Ability of human T lymphocytes to adhere to vascular endothelial cells and to augment endothelial permeability to macromolecules is linked to their state of post-thymic maturation, <i>J. Immunol.</i> 144:1233-1240, 1990.
<u>Cle</u>	O58	Paul, W.E., and J. Ohara, B-cell stimulatory factor 1/interleukin 4, Ann. Rev. Immunol. 5:429-459, 1987.
<u> </u>	O59	Noelle, R. et al., Increased expression of Ia antigens on resting B cells: an additional role for B-cell growth factor, <i>Proc. Natl. Acad. Sci. USA</i> 81:6149-6153, 1984.
<u>Cle</u>	O60	McHeyzer-Williams, M.G., Combinations of interleukins 2, 4 and 5 regulate the secretion of murine immunoglobuline isotypes, <i>Eur. J. Immunol.</i> 19:2025-2030, 1989.
_ Cu	O61	Tsuji, K. et al., Synergistic action of phorbol ester and IL-3 in the induction of "connective tissue-type" mast cell proliferation, <i>J. Immunol.</i> 144:678-684, 1990.
Cle	O62	Wankowicz, Z. et al. Synergy between tumor necrosis factor alpha and interleukin-1 in the induction of polymorphonuclear leukocyte migration during inflammation, <i>J. Leukoc. Biol.</i> 43:349-356, 1988.
	O63	Rabin, E.M. et al., Interferon-γ inhibits the action of B cell stimulatory factor (BSF)-1 on resting B cells, <i>J. Immunol</i> . 137:1573-1576, 1986.

_ lh	O64	Vercelli, D. et al., IL-4 inhibits the synthesis of IFN-gamma and induces the synthesis of IgE in human mixed lymphocyte cultures, <i>J. Immunol.</i> 144:570-573, 1990.
<u>lu</u>	O65	Dexter, T.M. et al., Conditions controlling the proliferation of Haemopoietic stem cells <i>in vitro</i> , <i>J. Cell. Physiol.</i> , 91:335-344, 1977.
<u> </u>	O66	Garner, S. and H.S. Kaplan, Long-term culture of human bone marrow cells, <i>Proc. Natl. Acad. Sci. USA</i> , 77:4756-4759, 1980
C/L_	O68	Bentley, S.A., Close range cell:cell interaction required for stem cell maintenance in continuous bone marrow culture, <i>Exp. Hematol.</i> , 9:308-312, 1981.
<u>Ch</u>	O69	Elices, M.J. et al., VCAM-1 on activated endothelium interacts with the leukocyte integrin VLA-4 at a site distinct from the VLA-4/fibronectin binding site, <i>Cell</i> , 60:577-584, 1990.
Cu	O70	Civin, C.I. et al., Antigenic analysis of hematopoiesis. III. A hematopoietic progenitor cell surface antigen defined by a monoclonal antibody raised against KG-1a cells, <i>J. Immunol.</i> , 133:157-165, 1984.
<u>Cle</u>	O71	Schuening, F. et al., Facilitation of engraftment of DLA-nonidentical marrow by treatment of recipients with monoclonal antibody directed against marrow cells surviving radiation, <i>Transplantation</i> 44:607-613, 1987.
Examiner		Date Considered
	hoon	Koh 8/93

*Examiner: Initial if reference considered, whether or not citation is in conformance with M.P.E.P. § 609; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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